Remarks

Assignee notes with appreciation the allowance of claims 26-29.

Claims 1-25 and 30-48 variously stand rejected under 35 U.S.C. § 102 as anticipated by U.S. Patent 5,575,554 to Guritz, as anticipated by U.S. Patent 6,201,525 to Janney, and under 35 U.S.C. § 103 as obvious over Guritz in view of Janney and U.S. Patent 6,028,597 to Ryan, Jr. et al. Assignee respectfully traverses the rejections.

CLAIMS 1, 25, 30

Claims 1, 25, and 30 stand rejected under 35 U.S.C. § 102 as anticipated by Guritz. The rejection cites Guritz's item 26, a "plurality of incandescent lamps" (C6/L3) as disclosing the rejected claims' shared limitation of "a regular two-dimensional array of pixel display elements." However, Guritz's plurality of lamps is clearly a one-dimensional sequence, not a two-dimensional array. Indeed, the closest Guritz comes to disclosing anything like a two-dimensional array of lamps is in the "square-shaped display 340" (C25/L48) illustrated in his FIG. 36. There too, however, the display is actually a one-dimensional sequence of individually selectable elements. Each "row" of display 340 is simply a collection of lamps that are connected in parallel and turn on or off as a unit.

For these reasons, claims 1, 25, and 30 are allowable.

In addition to "a regular two-dimensional array of pixel display elements," claim 25 recites

> a substrate having a front side and a back side and having mounted thereon . . . [the array] . . . a graphics controller . . . a storage medium . . . and a power source. [Emphasis added, as with all quotations herein]

The claim further recites "a fastener coupled to the back side of the substrate."

Guritz does not teach or suggest any such arrangement of a substrate and structure mounted on it. Even assuming for the sake of argument that a person's shirt could be considered a "substrate" for the neck-mounted controller and sleeve-mounted

displays of Guritz's device, the reference contains no teaching or suggestion of any fastener coupled to the back side of such a "substrate." For this reason in addition to those discussed above, claim 25 is allowable.

Claim 30 calls for an illuminated article useful as an ornament, which includes "a case . . . and a fastener physically coupled to the top of the case." Nowhere in Guritz is there any teaching or suggestion of a fastener coupled to the top of a case, and claim 30 is allowable for that reason as well as the reasons discussed above.

In sum, claims 1, 25, 30 and their dependent claims 2-24 and 31-48 are allowable over Guritz.

CLAIMS 2-4, 23, 31-33

Claims 2-4, 23, and 31-33 stand rejected under 35 U.S.C. § 103 as obvious over Guritz in view of Janney and in view of Ryan, Jr. et al. These claims recite, with varying degrees of specificity, particularly advantageous widths of a two-dimensional array of pixel display elements:

> . . . width in pixels that is between one and five times the character pitch of a character set displayed [claims 2, 31]
>
> . . . width in pixels that is between one and two times the character pitch of characters displayed [claim 23]
>
> . . . width in pixels that is between 1.1 and 2 times the character pitch of a character set displayed [claims 3, 32]
>
> . . . width in pixels that is approximately 1.5 times the character pitch of a character set displayed [claims 4, 33]

The rejection acknowledges that Guritz does not disclose the claimed widths, and it does not cite Janney or Ryan, Jr. et al. as having any such disclosure, either. However, the rejection asserts that modifying Guritz's system for its arrays to have a width as claimed would have been obvious because "such a modification would have involved a mere change in the range of the system."

The narrow display widths called for by claims 2-4, 23, and 31-33 are not just "mere changes" from what is disclosed in Guritz or any other cited reference. The

claimed display widths are significantly narrower than those of conventional alphanumeric displays. As demonstrated in assignee's specification, P12/L26 - P14/L15, the important metric of display readability versus cost is actually greater at the narrow widths claimed than it is with wider displays. In fact, optimum readability versus cost occurs when the display's width in pixels is only about 1.5 times the character pitch (see FIG. 12, P14/L3). That surprising and unexpected result evidences the non-obviousness of the claimed dimensions. In re Soni, 34 USPQ2d 1684 (Fed. Cir. 1995) (stating principle, "that which would have been surprising to a person of ordinary skill in a particular art would not have been obvious").

Another problem with the rejection is its failure to identify any suggestion in the references of record for the modification it considers obvious. Indeed, none of the cited references even recognize display width as a variable that can be modified to maximize readability vs cost. See MPEP 2144.05 II(B) ("a particular parameter must first be recognized as a result-effective variable, i.e., a variable which achieves a recognized result").

Further, neither Guritz nor any of the other cited references provides any suggestion or motivation for one to dimension its "plurality of incandescent lamps" to a claimed width that is defined in pixels. As discussed above, Guritz does not disclose a two-dimensional array of pixel display elements at all.

Claims 2-4, 23, and 31-33 are thus clearly allowable, even without regard to their dependence on claims that, as discussed above, are themselves allowable.

CLAIMS 10, 13, 18, 37

Claims 10, 13, 18, and 37 stand rejected under 35 U.S.C. § 103 as obvious over Guritz in view of Janney and in view of Ryan, Jr. et al. Claims 10, 13, and 37 call for "exactly two buttons" that are "electrically coupled to the graphics controller." Claim 18 calls for a "lack [of] any user-manipulated buttons or switches," excepting removal and replacement of the power source.

The rejection fails to even mention these limitations, much less point to any teaching or suggestion of them in any cited reference. Accordingly, claims 10, 13, 18, and 37 are allowable on their own merits as well.

CLAIM 21

Claim 21, which calls for a "lack [of] any resistor components" in connecting circuitry that conventionally requires such components, stands rejected under 35 U.S.C. § 102 as anticipated by Guritz. The rejection asserts that Guritz

> discloses that illuminated wearable comprising graphics controller and couplings that conduct current between the power source and any resistor components.

Respectfully, this statement does not point out, in Guritz or any other cited reference, any teaching or suggestion for omitting components that are conventionally required.

Accordingly, the rejection against claim 21 cannot stand.

CLAIM 22

Claim 22 includes various limitations in "means plus function" format, including a "means for displaying a message." This claim stands rejected under 35 U.S.C. § 102 as anticipated by Janney. The rejection asserts that Janney discloses a "means for displaying a message."

However, neither Janney nor any other cited reference teaches or suggests any of the structure, material, or acts described in assignee's specification, or any equivalents, corresponding to such means. 35 U.S.C. § 112(6). All of the embodiments described in assignee's specification employ as their "display means" two-dimensional arrays of pixel display elements, dimensioned with unconventionally narrow widths to maximize readability versus cost. As discussed above, the cited references do not teach or suggest any such display means.

Thus claim 22 is also allowable, along with its dependent claims 23-24.

CLAIM 39

Claim 39 stands rejected under 35 U.S.C. § 103 as obvious over Guritz in view of Janney and in view of Ryan, Jr. et al. This claim recites an additional array of pixel display elements:

> a second regular two-dimensional array of pixel display elements supported by the case and having a light-emitting side directed . . . in a different direction from the first array. [claim 39]

Advantageously, each of the different display arrays (and there can be more than two, as recited in dependent claim 46) can be viewed from different directions.

The rejection, which does not even mention the multiple display arrays of claim 39, fails to show any teaching or suggestion in any cited reference of any modification or combination that would meet the claim's limitations. Thus, claim 39 is allowable (along with its dependent claims 40-46), even without regard to its dependence on allowable claim 30.

CLAIM 49

New dependent claim 49 calls for "a case, wherein the power source and graphics controller are integrally housed with each other inside the case." This "integrally housed" arrangement may be better understood with reference to applicant's specification as filed, which illustrates a power source and graphics controller integrally housed with each other underneath a cover (Figure 1). The specification's Figures 13-15 variously illustrate integral housing of a graphics controller inside an enclosing case with an optional external power connector, the alternative to an external power source of course being an integrally housed power source.

None of the cited references teaches or suggests the integral housing arrangement of claim 49 with the subject matter of its base claim 1. Thus, assignee respectfully requests allowance of claim 49 along with its dependent claims 50-52.

CONCLUSION

In view of the remarks above, assignee respectfully requests reconsideration and withdrawal of the rejections against all of the pending claims, and allowance of new dependent claims 49-52.

Please feel free to telephone the undersigned if it would in any way advance prosecution of this application.

Respectfully submitted,
RAPID PROTOTYPES, INC.
by its representative

Dated: October 3, 2002

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE SPECIFICATION:

PLEASE AMEND the specification by substituting the paragraph beginning at P11/L29 and ending at P12/L3 with the following:

As noted above, both the control software and the message can be erased and reprogrammed via programming connector 24. Figure 1 illustrates how, in the preferred embodiment, LED matrix 21, battery 25, and the control circuit (consisting of PCB 30, MCU 22, and flip-flop IC 23) are all integrally housed with each other by cover 32. Due to the compactness of this integral housing, [F]for programming via connector 24 in the disclosed embodiment, battery 25 must be removed[,] to allow the connector to plug into the optional seven-way edge socket forming connector 24, shown in Figure 3. Battery holder 27 ensures correct alignment of the external programming device with edge socket 24.

IN THE CLAIMS:

PLEASE AMEND the following claim:

1. An illuminated wearable article comprising:

(a) a regular two-dimensional array of pixel display elements having a front[,] light-emitting side and an opposing[,] back side;

(b) a graphics controller physically [coupled to] and electrically [connected] coupled to the array;

(c) a power source physically [coupled to] and electrically [connected] coupled to the graphics controller and the array; and

(d) a fastener physically coupled to the back side of the array.